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Lower the Barrier & Be Empowered: Creating and Including Linked Data Vocabularies for Digital Collections

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Lower the Barrier & Be Empowered: **Creating and Including Linked** **Data Vocabularies for Digital** **Collections**

Sai Deng, University of Central Florida Libraries

Digital Repositories and Linked Data

- **STARS** (<https://stars.library.ucf.edu>)
 - UCF's IR; Based on [Digital Commons](#);
 - Allow to add extra fields for LOD links
- **Preparing for Linked Data**
 - Include links (e.g., viaf.org, id.loc.gov, Wikidata) in added additional fields for authors, advisors, college names, subjects etc.;
 - Data cleanup and reconciliation using OpenRefine

Digital Repositories and Linked Data

- **Islandora**

- Effort in mapping MODS to RDF;
- Fedora 4, LDP implementation; [Islandora CLAW](#)

- **Samvera** (previously “Hydra”)

- LDP platform, publication of RDF data;
- Case: [Oregon Digital](#)
 - Migrated from CONTENTdm to Hydra;
 - Created [opaquenamespace](#)

- **CONTENTdm**

- Not inside the system, but work on exported data;
- [Challenges of Mapping Digital Collections Metadata to Schema.org: Working with CONTENTdm](#) (Lampron et. al., 2016)
- OCLC& CONTENTdm Metadata Refinery, transforms CONTENTdm metadata to Linked Data, 2016. Not yet scalable. (Washburn et al., 2016)
- [Linked Data Research - OCLC](#)

Digital Repositories and Linked Data

- **Omeka**

- Open source web publishing platform;
- Supports DC, can export METS, dc-rdf, JSON etc.
- [Ozmeka \(plug-ins\)/ Omeka linked data](#)

- **DSpace**

- **DSpace Linked Data support** spans all three Layers: “the storage layer with a **triple store**, the business logic with classes to **convert** stored contents into RDF, and the application layer with a module to **publish** RDF serializations.” - Donohue. Linked (Open) Data.
(<https://wiki.duraspace.org/display/DSDOC6x/Linked+%28Open%29+Data>)
- [Illuminating DSpace's Linked Data Support](#) (Becker, 2016)

Adding Linked Data Vocabularies to UCF Digital Repositories

- **Adding LOD Links to Fields in Digital Repositories**
 - Authors/Creators
 - Contributors, e.g., thesis advisors
 - Corporate names, e.g., university, college and departmental names
 - Subjects
 - Person identifiers
- **OpenRefine**
 - **Download and installation**
<http://openrefine.org/download.html>
 - **Documentation**
<https://github.com/OpenRefine/OpenRefine/wiki/Documentation-For-Users>
 - **Features**
 - Import
 - Facet
 - Edit cells: Clustering...
 - Edit columns: Add Column based on this column; Fetching URLs from Web Services (*Enrich existing data columns)...
 - Expressions
 - Export
 - History...



Adding Linked Data Vocabularies to UCF Digital Repositories: Cases

- **Cases**

- **Adding LC and VIAF Links to Advisor Names**

- Faceting, clustering, LoC reconciliation, review; add column based on this column, VIAF reconciliation, review

- **Combining Multiple Links for Author Names**

- Expression: General Refine Expression Language (GREL)

- **Adding LC Subject Links to IR Records**

- Splitting, add column based on this column, expression

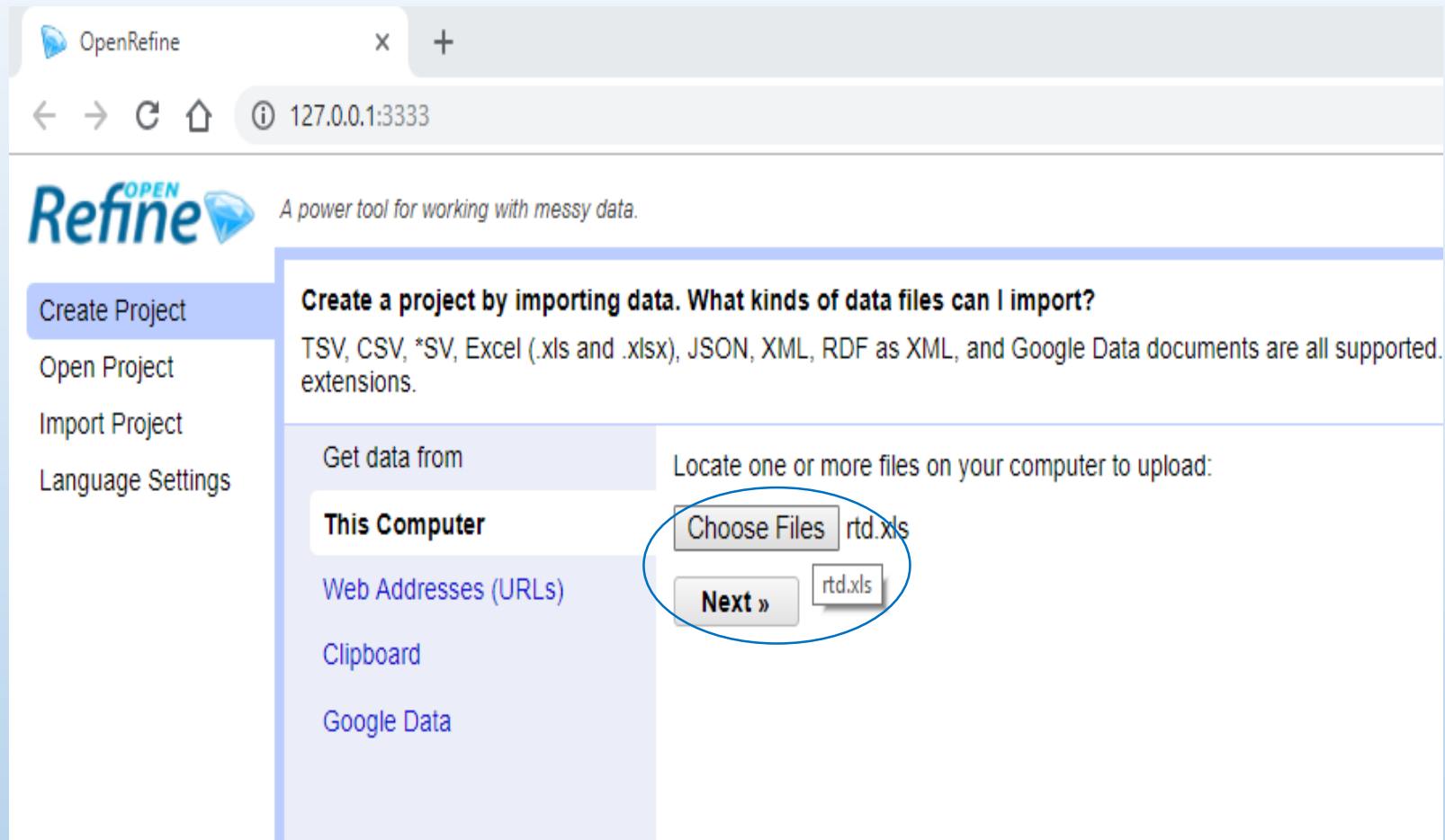
- **Adding FAST Headings by Fetching URLs**

- Add column by fetching URLs, expression, text transformation

- **For step by step instructions, please refer to**

[A Step Forward: Adding Linked Data Vocabularies to Digital Repositories](#)

Adding LC and VIAF Links to Advisor Names



Open OpenRefine — Choose Files — Select rtd.xls — Click “Next”

Adding LC and VIAF Links to Advisor Names

OpenRefine

127.0.0.1:3333

Refine A power tool for working with messy data.

Create Project Start Over Configure Parsing Options Project name: rtd **Create Project »**

Open Project
Import Project
Language Settings

	title	keywords	disciplines	abstract	notes	publication_date	same
1.	Sector Energy Price and Demand in the State of Florida	Energy consumption -- Florida; Petroleum products -- Prices -- Florida	Business		<p>If this is your thesis or dissertation, and want to learn how to access it or for more information about readership statistics, contact us at STARS@ucf.edu</p>	1980-04-01T00:00:00Z	
2.	A Comparison of Articulation Errors of Second Grade Students in Three Speaking Conditions	Articulation disorders in children	Communication Sciences and Disorders; Medicine and Health Sciences; Speech and Hearing Science		<p>If this is your thesis or dissertation, and want to learn how to access it or for more information about readership statistics, contact us at STARS@ucf.edu</p>	1981-04-01T00:00:00Z	
3.	A Comparison of /r/ Phoneme Production by Kindergarten Children in Stress-Variied Sentences	Articulation disorders in children	Communication Sciences and Disorders; Medicine and Health Sciences; Speech and Hearing Science		<p>If this is your thesis or dissertation, and want to learn how to access it or for more information about readership statistics, contact us at STARS@ucf.edu</p>	1981-04-01T00:00:00Z	
4.	Analysis of a Solar Collector in an Absorption Cycle Including a Pump Operated by Thermoelectric Cells	Solar collectors	Engineering	A mathematical computer model has been developed for the prediction of the thermal performance of a flat-plate solar collector used as the generator for	<p>If this is your thesis or dissertation, and want to learn how to access it or for more information about readership statistics, contact us at STARS@ucf.edu</p>	1981-04-01T00:00:00Z	

Parse data as

Excel files

JSON files

Line-based text files

CSV / TSV / separator-based files

Fixed-width field text files

PC-Axis text files

MARC files

RDF/N3 files

XML files

Open Document Format

Worksheets to Import

☒ 7785939 3651 rows

☐ Ignore first 0 line(s) at beginning of file

☒ Parse next 1 line(s) as column headers

☐ Discard initial 0 row(s) of data

☐ Load at most 0 row(s) of data

☒ Store blank rows

☒ Store blank cells as nulls

☐ Store file source (file names, URLs) in each row

Update Preview

Version 2.7 (TRUNK)

Help
About

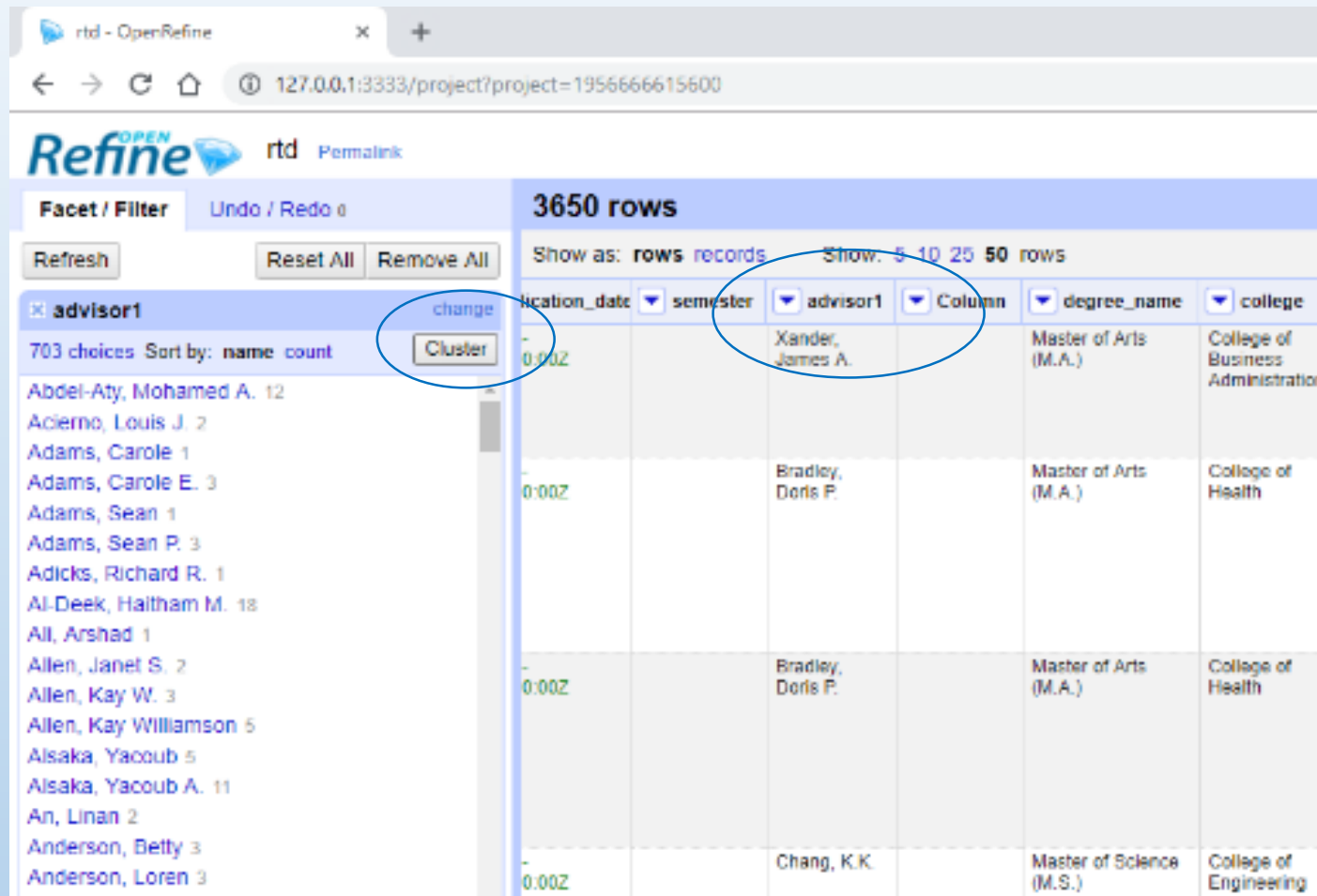
Click
“Create
Project”

Faceting

First click “Facet – Text facet” (under advisor1)

Adding LC and VIAF Links to Advisor Names

Clustering



The screenshot shows the OpenRefine interface with a project named 'rtd'. The main table has 3650 rows. The 'advisor1' column is selected, and the 'Cluster' button is highlighted. The table shows rows with advisor names, degrees, and colleges.

advisor1	publication_date	semester	advisor1	Column	degree_name	college
Xander, James A.	0:00Z				Master of Arts (M.A.)	College of Business Administration
Bradley, Doris P.	0:00Z				Master of Arts (M.A.)	College of Health
Bradley, Doris P.	0:00Z				Master of Arts (M.A.)	College of Health
Chang, K.K.	0:00Z				Master of Science (M.S.)	College of Engineering

Click “Cluster” on the left, or click “Edit Cells – Cluster and edit” (under “advisor1” column)

Adding LC and VIAF Links to Advisor Names

Clustering

Cluster & Edit column "advisor1"

(Method: key collision, Keying Function: fingerprint)

e.g.,

Hynes, Michael C. (45 rows)

Hynes, Michael C.

Hynes, michael C. (3 rows)


→ Hynes, Michael C.

Chow, Lee (7 rows)

Chow, Lee

Lee, Chow (1 rows)

→ Chow, Lee

Refine  rtd Permalink

Facet / Filter Undo / Redo 0 3650 rows

Refresh Reset All Remove All Show as: rows records Show: 5 10 25 50 rows

Cluster & Edit column "advisor1"

This feature helps you find groups of different cell values that might be alternative representations of the same concept and just have capitalization differences, and

Method: key collision Keying Function: fingerprint

Cluster Size	Row Count	Values in Cluster	Merge?	New Cell Value
2	48	<ul style="list-style-type: none">Hynes, Michael C. (45 rows)Hynes, michael C. (3 rows)	<input type="checkbox"/>	Hynes, Michael C.
2	8	<ul style="list-style-type: none">Shah, Mubarak (6 rows)Shah, Mubarak; (2 rows)	<input type="checkbox"/>	Shah, Mubarak
2	4	<ul style="list-style-type: none">Fernandez, Jose B. (3 rows)Fernández, José B. (1 rows)	<input type="checkbox"/>	Fernandez, Jose B.
2	16	<ul style="list-style-type: none">Wayson, Roger L. (15 rows)wayson, Roger L. (1 rows)	<input type="checkbox"/>	Wayson, Roger L.
2	8	<ul style="list-style-type: none">Chow, Lee (7 rows)Lee, Chow (1 rows)	<input type="checkbox"/>	Chow, Lee

Adding LC and VIAF Links to Advisor Names

Clustering

Cluster & Edit column "advisor1"

Try other algorithms;
Merge Selected & Close

**Might be hard to
determine at early stage:**
Butler, Jeff (8 rows)
Butler, Jeff F. (3 rows)

Gay, David A. (3 rows)
Gay, David (1 rows)
(*Appearance time? Middle
name? What's established?)

Refine OPEN rtd Permalink

Facet / Filter Undo / Redo 1 3650 rows

Refresh Reset All Remove All Show as: rows records Show: 5 10 25 50

✕ advisor1 690 choices

Cluster & Edit column "advisor1"

This feature helps you find groups of different cell values that might be alternative representations of the same concept and just have capitalization difference

Method: key collision Keying Function: ngram-fingerprint Ngram Size: 2

Cluster Size	Row Count	Values	Merge?	New Cell Value
2	4	<ul style="list-style-type: none">Nnadi, F. N.Nnadi, F.N. (2 rows)	<input type="checkbox"/>	Nnadi, F. N.
2	11	<ul style="list-style-type: none">Butler, Jeff (8 rows)Butler, Jeff F. (3 rows)	<input type="checkbox"/>	Butler, Jeff
2	4	<ul style="list-style-type: none">Gay, David A. (3 rows)Gay, David (1 rows)	<input type="checkbox"/>	Gay, David A.
2	2	<ul style="list-style-type: none">Van Stryland, Eric W. (1 rows)VanStryland, Eric W. (1 rows)	<input type="checkbox"/>	Van Stryland, Eric W.
2	2	<ul style="list-style-type: none">Applen, J. D. (1 rows)Applen, J.D. (1 rows)	<input type="checkbox"/>	Applen, J. D.
2	7	<ul style="list-style-type: none">Moharam, M. G. (6 rows)Moharam, M.G. (1 rows)	<input type="checkbox"/>	Moharam, M. G.

Reconciliation

**Sort by
advisor;**

**Click
“Reconcile—
Start
reconciliation”**

Adding LC and VIAF Links to Advisor Names

Refine advisors_RTDs.xlsx Permalink

Facet / Filter Undo / Redo 5 968 rows Extensions: Named-entity re

Refresh Reset All Remove All Show as: rows records Show: 5 10 25 50 rows Sort

advisor 235 choices Sort by:

Reconcile column "advisor"

Services

- NamedEntity
- Wikidata Reconciliation for OpenRefine (en)
- VIAF
- LC (by way of VIAF)
- ORCID
- Open Library
- LoC Reconciliation Service**
- Virtual International Authority File
- Sindice
- LCSH
- VIAF - LC

Pick a Service or Extension on Left

How to set up LoC Reconciliation Service
Click "Add Standard Service";

Enter the service's URL:

<https://lc-reconcile.herokuapp.com/>

Add Service **Cancel**

Add Standard Service...

Start Reconciling **Cancel**

Reconciliation Service:
Need to set up the service first

Reconciliation

Choose

Adding LC and VIAF Links to Advisor Names

Reconciliation

Refine ^{OPEN} rtd Permalink

Facet / Filter Undo / Redo 6 3650 rows

Refresh Reset All Remove All Show as: rows records

Reconcile column "advisor1"

Reconcile each cell to an entity of one of these types:

- ☒ Names
- ☐ Subjects
- ☐ LoC

614 choices Sort by: [icon]

Abdel-Aty, Mohamed A. 12
Acierno, Louis J. 2
Adams, Carole E. 4
Adams, Sean P. 4
Adicks, Richard R. 1
Al-Deek, Haitham M. 18
Ali, Arshad 1
Allen, Janet S. 2
Allen, Kay W. 3
Allen, Kay Williamson 5
Alkhalaf, Youssef A. 16

Leave “Names” as default;
Click “Start Reconciling”

Refine ^{OPEN} rtd Permalink

Facet / Filter Undo / Redo 7 3650 rows

Refresh Reset All Remove All Show as: rows records Show: 5 10 25 50 rows

advisor1 change

614 choices Sort by: name count Cluster

Abdel-Aty, Mohamed A. 12
Acierno, Louis J. 2
Adams, Carole E. 4
Adams, Sean P. 4
Adicks, Richard R. 1
Al-Deek, Haitham M. 18
Ali, Arshad 1
Allen, Janet S. 2
Allen, Kay W. 3
Allen, Kay Williamson 5
Alkhalaf, Youssef A. 16

advisor1: judgment change

2 choices Sort by: name count

matched 1549
none 2101

Facet by choice counts

education_date	semester	advisor1	Column	degree_name
2002		Hedrick, Dona Lea Choose new match		Master of Arts (M.A.)
2002		Whitehouse, Gary E. [x] Whitehouse, Gary E., 1938- (87) [x] Create new topic	edit	Master of Science (M.S.)

Matched 1549
(about 42.44%).

Adding LC and VIAF Links to Advisor Names

OpenRefine interface showing a project named "Adams, Sean P. - LC Linked Data". The interface displays a facet on "advisor1" with 614 choices. The facet results list includes "Adams, Sean P." (4 choices), which is highlighted in orange and circled. The main table shows 4 matching rows (3650 total). The first row is for "Adams, Sean P.", with a green bar indicating a match. The "edit" button next to the name is circled in blue. The table columns are semester, advisor1, degree_name, college, and department.

semester	advisor1	degree_name	college	department
	Adams, Sean P. <small>edit</small>	Master of Arts (M.A.)	College of Arts and Sciences	History

- For names linked, click the **name** to check;
- If it's not the right person, click "Choose new match" for other options.

Adams, Sean P.

URI(s) <http://id.loc.gov/authorities/names/n92070159>

Sources

found: Letters from the front, 1898-1945, 1992:CIP t.p. (Sean P. Adams)

found: Old Dominion, industrial commonwealth coal, politics, and economy in antebellum America, 2004:ECIP t.p. (Sean Patrick Adams) dataview (b. 1969; Department of History, Univ. of Central Fla.)

Adding LC and VIAF Links to Advisor Names

Review

3 matching rows (3650 total)

Show as: **rows** records Show: 5 10 25 **50** rows

▼ advisor1	▼ degree_name	▼ college	▼ department	▼ degree_progr
Chase, Diane <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Chase, Diane (100) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <u>Chase, Diane Z.</u> (92) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Chase, Diane, 1947- (81) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new topic	edit	Master of Arts (M.A.)	College of Arts and Sciences	Liberal Studies

Click the link under “Chase, Diane Z.”, it opens:

<http://id.loc.gov/authorities/names/n89612783>

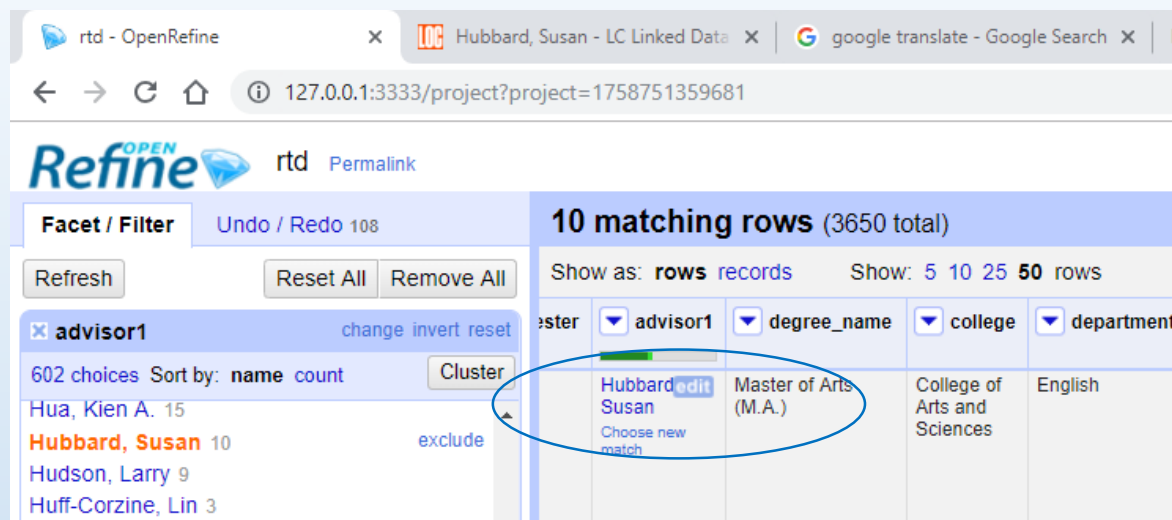
Sources

found: nuc89-21890: Her Offerings to the gods, 1986(hdg. on DDO rept.: Chase, Diane Z.; usage: Diane Z. Chase)

found: Her A postclassic perspective, 1988:t.p. (Diane Zaino Chase) p. 1 (Univ. of Central Florida)

- For names unlinked, click the options below to check;
- If it's the right person, click ✓ (apply to this cell only) or ✓✓ (apply to all identical cells) to apply.
- If no right name found, click “Create new topic”;
- Input the right name and apply.

Adding LC and VIAF Links to Advisor Names



The screenshot shows the OpenRefine web interface. The browser tabs include 'rtd - OpenRefine', 'LOC Hubbard, Susan - LC Linked Data', and 'google translate - Google Search'. The address bar shows '127.0.0.1:3333/project?project=1758751359681'. The OpenRefine header shows 'Refine' and 'rtd Permalink'. The 'Facet / Filter' section shows 'Undo / Redo 108' and buttons for 'Refresh', 'Reset All', and 'Remove All'. The '10 matching rows (3650 total)' section shows a table with columns: 'advisor1', 'degree_name', 'college', and 'department'. The 'advisor1' column is selected, and a list of names is shown on the left. The row for 'Hubbard, Susan' is highlighted, and a blue circle is drawn around the 'Hubbard, Susan' text in the 'advisor1' column.

Review

- Can be time-consuming;
- **Determining factors:** name form, institution, field, book/work info, birth place, year...
- When LCNAF doesn't provide enough information, further check the web;
- When confirmed that it's the right person, click ✓ or ✓✓ to apply.

Hubbard, Susan

URI(s) <http://id.loc.gov/authorities/names/n88050761>

Sources

found: Her Is repeating a grade a sign of failure? 1988:p. 6...

found: Phone call to S. Hubbard 5-14-90(Susan Hubbard, author of Is repeating a grade ... is the same person; **b. 9-6-51**)

[Hubbard, Susan 1951- \(Susan Mary Hubbard\)](#) (Encyclopedia)

Born September 6, 1951, in Syracuse, NY... *Home*—Winter Park, FL. *Office*—Department of English, University of Central Florida

Adding LC and VIAF Links to Advisor Names

Lillios, Anna, 1948-

URI(s) <http://id.loc.gov/authorities/names/n2003044537>

Sources

found: [Lawrence Durrell and the Greek world](#),
c2004:EDCIP t.p. (Anna Lillios) data view (b. 3/13/48)

Google books: [Lawrence Durrell and the Greek World](#)

About the author (2004)

Anna Lillios, [associate professor of English at the University of Central Florida](#), is the editor of the "Marjorie Kinnan Rawlings Journal of Florida Literature"...

Lue, Martha Scott

URI(s) <http://id.loc.gov/authorities/names/n00091486>

Sources

found: Lue, Martha Scott. [A survey of communication disorders for the classroom teacher](#), 2000:CIP t.p.
(Martha Scott Lue)

[CV in UCF Website](#): Martha S. Lue Stewart

Lue (Stewart), M.S. (2001). [A survey of communication disorders for the classroom teacher](#). NY: Pearson.

Review

- What can be checked:
 - Google
 - Wikipedia
 - Amazon books
 - Publisher site
 - Obituaries
 - University website
 - Publications
 - CVs
 - Encyclopedia
 - Newsletter
 - Archives
 - ...

Adding LC and VIAF Links to Advisor Names

Add Column for URLs

- Edit column—Add column based on this column (under advisor1)
- In the opened new window, fill in:
New column name: advisor1_lc
Expression: cell.recon.match.id

3650 rows Extensions:

Show as: rows records Show: 5 10 25 50 rows

semester advisor1 degree_name college department degree_program

Add column based on column advisor1

New column name: advisor1_lc

☒ set to blank ☐ store error ☐ copy value from original column

Expression: cell.recon.match.id Language: General Refine Expression Language (GREL) No syntax error.

Preview History Starred Help

18.	Wehr, Paul (Paul W.)	http://id.loc.gov/authorities/names/n83208149
19.	Xander, James A.	Error: Cannot retrieve field from null
20.	Hedrick, Dona Lea	http://id.loc.gov/authorities/names/no00040043
21.	Whitehouse, Gary E., 1938-	http://id.loc.gov/authorities/names/n85146525
22.	Armstrong, Lee H.	http://id.loc.gov/authorities/names/n79131864
23.	Gupton, John T.	Error: Cannot retrieve field from null
24.	Metwalli, Sayed M.	Error: Cannot retrieve field from null
25.	Pryor, Burt	Error: Cannot retrieve field from null

OK Cancel

Facet / Filter Undo / Redo 424

Refresh Reset All Remove All

advisor1 change 578 choices Sort by: name count Cluster

Abdel-Aty, Mohamed A. 12
Aciermo, Louis J., 1920 2
Adams, Carole E. 4
Adams, Sean P. 4
Adicks, Richard R. 1
Al-Deek, Haltham M. 18
Ali, Arshad 1
Allen, Janet S. 2

3650 rows Show as: rows records Show: 5 10 25 50 rows

semester advisor1 advisor1_lc degree_name

Hedrick, Dona Lea	http://id.loc.gov/authorities/names/no00040043	Master of Arts (M.A.)
Whitehouse, Gary E., 1938-	http://id.loc.gov/authorities/names/n85146525	Master of Science (M.S.)

LC links added to the data sheet

Adding LC and VIAF Links to Advisor Names

Add VIAF Links

Add a duplicate column for advisor1: advisor1_c.

Add a column based on advisor1_c:

New column name advisor1_viaf
Expression

"https://viaf.org/viaf/" + cell.recon.match.id

[advisor1_viaf] Reconciliation
Select **VIAF-LC Reconciliation Service** (Check LC names only)
(*or Virtual International Authority File service)

3650 rows Extensions: Named-entity recognition RDF

Show as: rows records Show: 5 10 25 50 rows « first < previous 1 - 50 next > last »

semester	advisor1	advisor1_c	advisor1_lc	degree_name	college
	Whitehouse, Gary E., 1938- <small>Choose new match</small>	Whitehouse, Gary E., 1938- <small>Choose new match</small>	http://id.loc.gov/authorities/names/n85146525	Master of Science (M.S.)	College of Engineering

Add column based on column advisor1_c

New column name: advisor1_viaf

☒ set to blank ☐ store error ☐ copy value from original column

Expression: "https://viaf.org/viaf/" + cell.recon.match.id Language: General Refine Expression Language (GREL) No syntax error.

Preview History Starred Help

15.	Pryor, Burt	https://viaf.org/viaf/75893781
16.	Eno, Burton E.	https://viaf.org/viaf/23561002
17.	Fisher, Randy D.	Error: Cannot retrieve field from null
18.	Wehr, Paul (Paul W.)	https://viaf.org/viaf/6317806
19.	Xander, James A.	Error: Cannot retrieve field from null
20.	Hedrick, Dona Lea	https://viaf.org/viaf/14313884
21.	Whitehouse, Gary E., 1938-	https://viaf.org/viaf/92873903
22.	Armstrong, Lee H.	https://viaf.org/viaf/6219593

How to set up VIAF-LC Reconciliation Service

Click "Add Standard Service";

Enter the service's URL: <http://refine.codefork.com/reconcile/viaf/LC>

How to set up Virtual International Authority File service

Enter the service's URL: http://iphylo.org/~rpage/phyloinformatics/services/reconciliation_viaf.php

Adding LC and VIAF Links to Advisor Names

Combine Values

Using Expression to Format Multiple Links

- Add column based on this column
 - New column name advisor1_viaf_lc
 - Expression

If there are no blank cells:

```
cells["author1_viaf"].value + " " +
cells["author1"].value + "[VIAF] " +
cells["author1_lc"].value + " " +
cells["author1_c"].value + "[LC]"
```

If there are blank cells:

```
if(isBlank(cells["advisor1_viaf"].value), " ",
cells["advisor1_viaf"].value) + " " +
if(isBlank(cells["advisor1_c"].value), " ",
cells["advisor1_c"].value) + " " +
"[VIAF] " +
if(isBlank(cells["advisor1_lc"].value), " ",
cells["advisor1_lc"].value) + " " +
if(isBlank(cells["advisor1"].value), " ",
cells["advisor1"].value) + " " +
"[LC]"
```

3650 rows Extensions: Named-entity recognition

Show as: rows records Show: 5 10 25 50 rows

advisor1	advisor1_c	advisor1_viaf	advisor1_lc
Whitehouse, Gary E., 1938- Choose new match	Whitehouse, Gary E., 1938- Choose new match	https://viaf.org/viaf/92873903	http://id.loc.gov/authorities/names/n85146525

Add column based on column advisor1

New column name: advisor1_viaf_lc

☐ set to blank ☐ store error ☒ copy value from original column

Expression: if(isBlank(cells["advisor1_viaf"].value), " ", cells["advisor1_viaf"].value) + " " + if(isBlank(cells["advisor1_c"].value), " ", cells["advisor1_c"].value) + " " +

Language: General Refine Expression Language (GREL) No syntax error.

Preview History Starred Help

37. Whitehouse, Gary E., 1938-	https://viaf.org/viaf/92873903 Whitehouse, Gary E., 1938- [VIAF] http://id.loc.gov/authorities/names/n85146525 Whitehouse, Gary E., 1938- [LC]
38. Bollinger, Rick L.	https://viaf.org/viaf/58191117 Bollinger, Rick L. [VIAF] http://id.loc.gov/authorities/names/n88610533 Bollinger, Rick L. [LC]
39. Cottrell, Larry K.	Cottrell, Larry K. [VIAF] Cottrell, Larry K. [LC]
40. Fernández, José B.	Fernández, José B. [VIAF] http://id.loc.gov/authorities/names/n2018029713 Fernández, José B. [LC]
41. Hosler, E.	Hosler, E. Ramon [VIAF] Hosler, E. Ramon [LC]

OK

advisor1	advisor1_viaf_lc
Whitehouse, Gary E., 1938- Choose new match	https://viaf.org/viaf/92873903 Whitehouse, Gary E., 1938- [VIAF] http://id.loc.gov/authorities/names/n85146525 Whitehouse, Gary E., 1938- [LC]

An Example in the IR (with VIAF/LC links)

STARS Citation

Wijeratne, Kolonne A., "An Industrial Wastewater Treatment Review for the Textile and Pulp and Paper Industries of Srilanka" (1976). *Retrospective Theses and Dissertations*. 266.

<https://stars.library.ucf.edu/rtd/266>

Contributor (Linked data)

[McLellon, Waldron M.](#) [VIAF]

[McLellon, Waldron M.](#) [LC]

[University of Central Florida. College of Engineering](#) [VIAF]

[University of Central Florida. College of Engineering](#) [LC]

Collection (Linked data)

[Retrospective Theses and Dissertations](#)

**LOD links
added for:**
Advisor name
College name

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<https://stars.library.ucf.edu/rtd/266/>

Adding Locally Created Wikidata for RTDs

- Wikidata is created for local terms.

STARS Citation

Howerton, Peggie A., "Path to chaos : excess, absence and anarchy in Tennyson's Idylls of the King" (1993). *Retrospective Theses and Dissertations*. 3669.

<https://stars.library.ucf.edu/rtd/3669>

Contributor (Linked data)

[Richard R. Adicks \(Q57704630\)](#)

STARS Citation

Risher, Thomas Alan, "A Computer Graphics Analysis of a Freeway Merge Control System" (1976). *Retrospective Theses and Dissertations*. 251.

<https://stars.library.ucf.edu/rtd/251>

Contributor (Linked data)

[Christian S. Bauer, Jr. \(Q57708477\)](#)

[University of Central Florida. College of Engineering \[VIAF\]](#)

[University of Central Florida. College of Engineering \[LC\]](#)

Collection (Linked data)

[Retrospective Theses and Dissertations](#)

LOD links added for
Advisor name, e.g.,

Richard R.

Adicks (Q57704630)

<https://www.wikidata.org/wiki/Q57704630>

<https://stars.library.ucf.edu/rtd/3669/>



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Donate

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Permanent link
Page information
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Cite this page

Item Discussion

Read View history

Search Wikidata

Richard R. Adicks (Q57704630)

Professor Emeritus of English, University of Central Florida

Adicks, Richard R. | Richard Adicks | Adicks, Richard

▼ In more languages Configure

Language	Label	Description	Also known as
English	Richard R. Adicks	Professor Emeritus of English, University of Central Florida	Adicks, Richard R Richard Adicks Adicks, Richard
Welsh	No label defined	No description defined	
Spanish	No label defined	No description defined	
Traditional Chinese	No label defined	No description defined	

All entered languages

Statements

instance of	<div><div></div><div>human</div></div> <div>▼ 0 references</div> <div>+ add reference</div> <div>+ add value</div>
sex or gender	<div><div></div><div>male</div></div> <div>▼ 0 references</div> <div>+ add reference</div> <div>+ add value</div>
given name	<div><div></div><div>Richard</div></div> <div>▼ 0 references</div> <div>+ add reference</div> <div>+ add value</div>

Create a new Item

Language:

en

Label:

enter a label in English

Description:

enter a description in English

Aliases, pipe-separated:

enter some aliases in English

Create

Create a new Item

**Richard R.
Adicks (Q57704630)**
<https://www.wikidata.org/wiki/Q57704630>

**Statements
Properties**
[instance of](#)
[sex or gender](#)
[given name](#)

...

Adding Locally Created Wikidata for RTDs

family name	<div><div><div><div><div></div><div>Adicks</div><div>edit</div></div></div><div><div>▼ 0 references</div><div><div>+ add reference</div><div>+ add value</div></div></div></div></div>
place of birth	<div><div><div><div><div></div><div>Lake City</div><div>edit</div></div></div><div><div>► 1 reference</div><div><div>Lake City</div><div>▼ 1 reference</div><div>reference URL</div></div><div><div>https://www.legacy.com/obituaries/orlandosentinel/obituary.aspx?n=richard-adicks&pid=175526324</div></div></div></div></div>
date of death	<div><div><div><div><div></div><div>15 August 201</div><div></div></div></div><div><div>► 1 reference</div><div><div>+ add value</div></div></div></div></div>
place of death	<div><div><div><div><div></div><div>Lakeland</div><div>edit</div></div></div><div><div>► 1 reference</div><div><div>+ add value</div></div></div></div></div>
occupation	<div><div><div><div><div></div><div>university teacher</div><div>edit</div></div></div><div><div>▼ 0 references</div><div><div>+ add reference</div><div>+ add value</div></div></div></div></div>
field of work	<div><div><div><div><div></div><div>English</div><div>edit</div></div></div><div><div>▼ 0 references</div><div><div>+ add reference</div><div>+ add value</div></div></div></div></div>

**Richard R.
Adicks (Q57704630)**

Statements

...

[family name](#)

[place of birth](#)

[date of death](#)

[place of death](#)









[occupation](#)

[field of work](#)

...

Property Reference

Adding Locally Created Wikidata for RTDs

employer	<div><div> University of Central Florida</div><div>edit</div></div> <div>0 references</div> <div>+ add reference</div>
	<div><div> Rollins College</div><div>edit</div></div> <div>1 reference</div>
	<div><div> Georgia Institute of Technology</div><div>edit</div></div> <div>1 reference</div>
	+ add value
award received	<div><div> UCF Faculty Excellence in Teaching Award</div><div>edit</div></div> <div>1 reference</div>
	+ add value
educated at	<div><div> Tulane University</div><div>1 reference</div></div>
academic degree	<div><div> Doctor of Philosophy</div><div>0 references</div></div>
notable work	<div><div> A Court for Owls</div><div>1 reference</div></div> <div><div> Oviedo: Biography of a Town</div><div>1 reference</div></div>

Oviedo: Biography of a Town (Q57705146)

Book by Richard Adicks

[In more languages](#) [Configure](#)

Language	Label	Description
English	Oviedo: Biography of a Town	Book by Richard Adicks
Welsh	No label defined	No description defined
Spanish	No label defined	No description defined
Traditional Chinese	No label defined	No description defined

Statements

instance of

 written work

[0 references](#)

**Richard R.
Adicks (Q57704630)**

**Statements
Properties**

...

[employer](#)
[award received](#)
[educated at](#)
[academic degree](#)
[notable work](#)

Book Name

[instance of](#) [written work](#)

**written
work (Q47461344)**

[subclass of](#) [work](#)

Linked to External Wikidata

STARS Citation

Lefforge, Andrea, "Analysis of the Public Service Employment Targeting Objectives of Florida" (1980). *Retrospective Theses and Dissertations*. 499.

<https://stars.library.ucf.edu/rtd/499>

Contributor (Linked data)

[Hosni, Djehane, A. \[VIAF\]](#)

[Hosni, Djehane, A. \[LC\]](#)

[University of Central Florida. College of Business Administration \(Q7895232\)](#)

Collection (Linked data)

[Retrospective Theses and Dissertations](#)

Wikidata

University of Central Florida. College of Business Administration (Q7895232)

Description defined

Language	Label	Description	Also known as
English	University of Central Florida. College of Business Administration	No description defined	
Welsh	No label defined	No description defined	
Spanish	No label defined	No description defined	
Traditional Chinese	No label defined	No description defined	

Statements

Instance of business school 0 references + add reference + add value

Inception 1950 1 reference + add value

Coordinate location 28°36'32"N, 81°11'57.8"W 1 reference + add value

Official website http://www.bus.ucf.edu/ language of work or name English 1 reference + add value + add statement

Identifiers

Quora topic ID University-of-Central-Florida-College-of-Business-Administration 1 reference + add value + add statement

Wikipedia (1 entry) + edit
University of Central Florida College of Business Administration

Wikibooks (0 entries) + edit

Wikinews (0 entries) + edit

Wikisource (0 entries) + edit

Wikivoyage (0 entries) + edit

Wikiversity (0 entries) + edit

Wikiquote (0 entries) + edit

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<https://stars.library.ucf.edu/rtd/499/>

**University of Central Florida. College of
Business Administration (Q7895232)**

<https://www.wikidata.org/wiki/Q7895232>

Wikidata/VIAF/LC Links in the Record

- A Special Example with Multiple LOD Links: Wikidata, VIAF, LC

STARS Citation

Chitsaz, Bijan, "Computerized Displacement Data Analysis in Laser Speckle Photography" (1985). *Retrospective Theses and Dissertations*. 4818.

<https://stars.library.ucf.edu/rtd/4818>

Contributor (Linked data)

[Faissal A. Moslehy \(Q59495035\)](#)

[Moslehy, Faissal Abdel Haleem](#) [VIAF]

[Moslehy, Faissal Abdel Haleem](#) [LC]

[University of Central Florida. College of Engineering](#) [VIAF]

[University of Central Florida. College of Engineering](#) [LC]

LOD links
added for:
Advisor name
College name


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*Normally we only create Wikidata entries for names that are not in the VIAF or LC database.

Local Wikidata Record Linked to VIAF/LC



WIKIDATA

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- Related changes
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- Permanent link
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- Cite this page

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Faissal A. Moslehy (Q59495035)

Professor of Mechanical Engineering, University of Central Florida

Moslehy, Faissal A. | Moslehy, Faissal | Faissal Moslehy | Moslehy, Faissal Abdel Haleem | Moslehy, F. A. | Moslehy, F. A. (Faissal Abdel) | F. A. Moslehy | Faissal Abdel Haleem Moslehy

In more languagesConfigure

Language	Label	Description	Also known as
English	Faissal A. Moslehy	Professor of Mechanical Engineering, University of Central Florida	Moslehy, Faissal A. Moslehy, Faissal Faissal Moslehy Moslehy, Faissal Abdel Haleem

family name

Moslehy

0 references

add reference

add value

Welsh

No label defined

Spanish

No label defined

Traditional Chinese

No label defined

All entered languages

Statements

instance of

hu

family name

Moslehy

0 references

add reference

add value

sex or gender

m

field of work

engineering

1 reference

add value

employer

University of Central Florida

0 references

add reference

add value

member of

American Society of Mechanical Engineers

1 reference

add value

International Association for Boundary Element Methods

1 reference

add value

award received

UCF Teaching Incentive Program Award

1 reference

add value

UCF Excellence in Professional Service Award

1 reference

add value

given name




Fa

**Faissal A.
Moslehy (Q59495035)**

Statements

- [instance of](#)
- [sex or gender](#)
- [given name](#)
- [family name](#)
- [occupation](#)
- [field of work](#)
- [employer](#)
- [member of](#)
- [award received](#)
- [educated at](#)
- [academic degree](#)
- [official website](#)

Local Wikidata Record Linked to VIAF/LC

Identifiers		
VIAF ID	96900524 ▼ 0 references	 edit + add reference + add value
Library of Congress authority ID	n82027354 ▼ 0 references	 edit + add reference + add value
ISNI	0000 0000 6895 0732 ▶ 1 reference	 edit + add value + add statement

Identifiers

[VIAF ID](#)

[Library of Congress authority ID](#)

[ISNI](#)

ISNI	0000 0000 6895 0732 ▼ 1 reference	 edit
	VIAF ID	96900524
	reference URL	http://viaf.org/viaf/96900524
	stated in	Virtual International Authority File
		+ add reference
		+ add value

Reference

[stated in](#)

[VIAF ID](#)

[reference URL](#)

Querying Wikidata

Wikidata Query Service

Examples Help Tools

English

Query Helper

+ Filter

employer University of Central Florida

occupation university teacher

+ Show

field of work

sex or gender

Limit 180

```
1 SELECT ?University_of_Central_Florida ?University_of_Central_FloridaLabel ?field
2 SERVICE wikibase:label { bd:serviceParam wikibase:language "[AUTO_LANGUAGE],en
3 ?University_of_Central_Florida wdt:P108 wd:Q143451.
4 ?University_of_Central_Florida wdt:P106 wd:Q1622272.
5 OPTIONAL { ?University_of_Central_Florida wdt:P101 ?field_of_work. }
6 OPTIONAL { ?University_of_Central_Florida wdt:P21 ?sex_or_gender. }
7 }
8 LIMIT 180
```

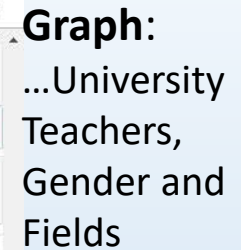
[Wikidata Query Service](#)



180 results in 297 ms

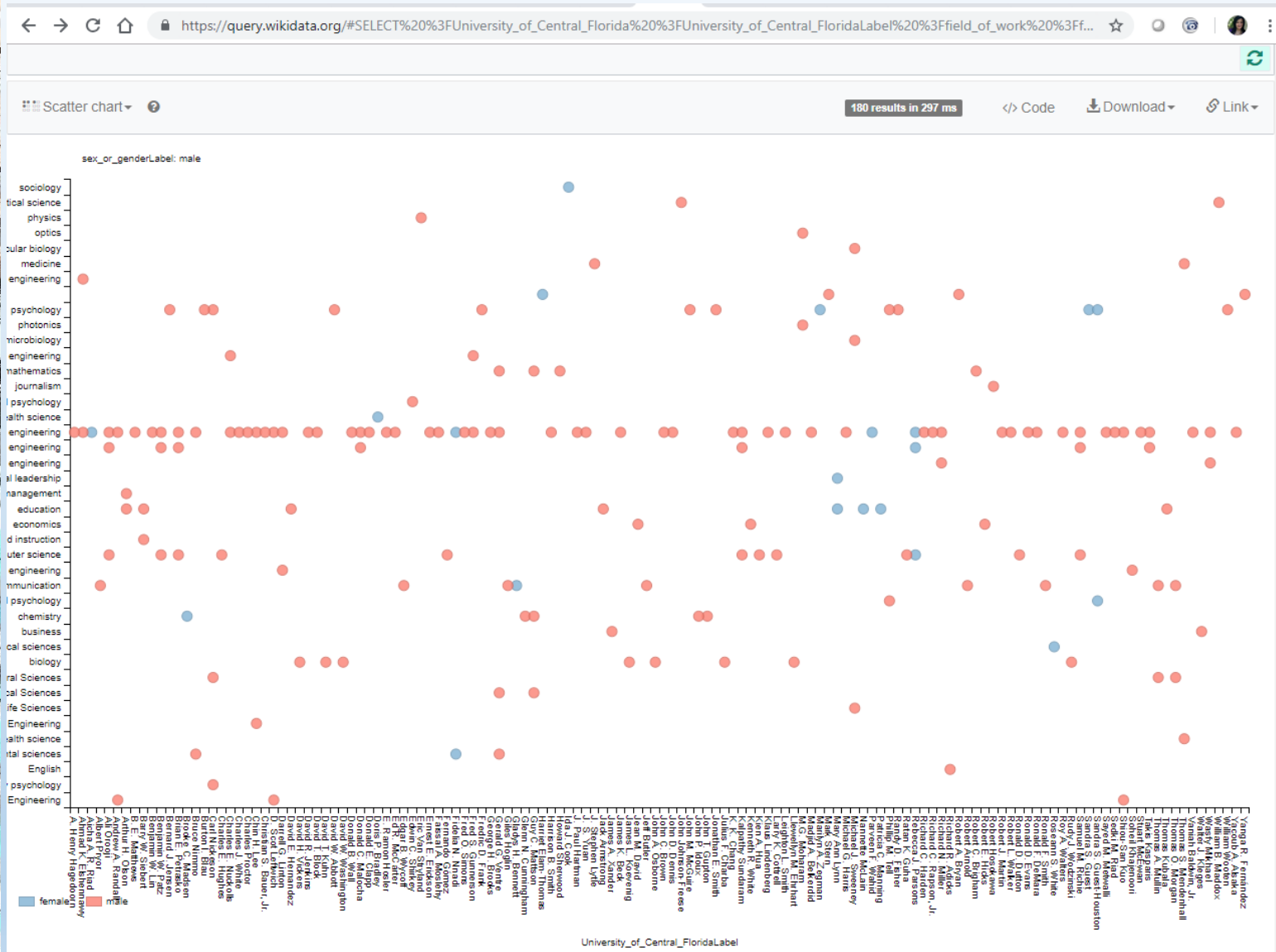
Code Download Link

University_of_Central_Florida	University_of_Central_FloridaLabel	field_of_work	field_of_workLabel	sex_or_gender	sex_or_genderLabel
Q57978539	Larry K. Cottrell	Q21198	computer science	Q6581097	male
Q57978729	Glenn N. Cunningham	Q2329	chemistry	Q6581097	male
Q57978898	Jean M. David	Q8134	economics	Q6581097	male
Q57978987	Ronald F. DeMara	Q11023	engineering	Q6581097	male
Q57982750	John D. Dennis	Q11023	engineering	Q6581097	male
Q57982795	Ronald D. Dutton	Q21198	computer science	Q6581097	male
Q57982886	Llewellyn M. Ehrhart	Q420	biology	Q6581097	male
Q57983075	Ahmad K. Elshennawy	Q11023	engineering	Q6581097	male



*The data pool is very small. Not representative as of now.

Querying Wikidata: Graphical Presentations



Scatter Chart:
...University Teachers, Gender and Fields

*The data pool is very small. Not representative as of now.

Discussion

- **Possible Ways to Get Involved with Linked Data**

- Be aware of what's going on, attend webinars/trainings;
- Be an advocate of open data;
- Help researchers to understand linked data, use open data and linked data to support research;
- Promote linked data and identity management (e.g., ORCID);
- Collaborate and contribute to linked data projects when possible, e.g., add LOD links to enrich records information...

- **Recommended Wikidata Practices for Libraries to be Determined**

- Creating local authority records using Wikidata platform is a low barrier linked data practice;
 - For terms already in the national or international authority databases, is it better for local libraries not to add Wikidata entries even they can be linked to VIAF/LC and additional information is available? (What about OCLC's Wikibase experiment?)
 - If Wikidata entries are added by libraries for terms already in the VIAF/LC authority database, should we wait for the Wikidata's identifiers/external links (e.g., VIAF/LC/ISNI etc.) to be imported by national efforts?
 - What's the current status in authority control with various methods by different entities?
- For us, we will continue to explore OpenRefine, Wikidata and related services to enrich metadata and improve workflow for our digital collections.

Resources

- Berners-Lee, Tim. Linked data. <https://www.w3.org/DesignIssues/LinkedData.html>
- Becker (2016). Illuminating DSpace's linked data support. <https://www.slideshare.net/pascalbecker/illuminating-dspaces-linked-data-support>
- Deng (2018). A step forward: Adding linked data vocabularies to digital repositories. <https://stars.library.ucf.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1652&context=ucfscholar>
- Digital Commons. <https://www.bepress.com/products/digital-commons/>
- DSpace: Linked (open) data. <https://wiki.duraspace.org/display/DSDOC6x/Linked+%28Open%29+Data>
- FAST: Faceted Application of Subject Terminology. <http://id.worldcat.org/fast>
- FAST linked data API. <https://www.oclc.org/developer/develop/web-services/fast-api/linked-data.en.html>
- Free Your Metadata. Linked data. <http://freeyourmetadata.org/>
- International Standard Name Identifier (ISNI). <http://www.isni.org/>
- Islandora CLAW. <https://islandora.ca/CLAW>
- Lampron et. al. (2016). Challenges of mapping digital collections metadata to schema.org: Working with CONTENTdm. <https://experts.illinois.edu/en/publications/challenges-of-mapping-digital-collections-metadata-to-schemaorg-w>
- LC Linked Data Service: Authorities and vocabularies. <https://id.loc.gov/>
- Motley Collection of Theatre and Costume Design (New)—Hamlet--Caesar. <http://imagesearch-test1.library.illinois.edu/cdm/ref/collection/motley-new/id/599>
- OCLC linked data. <https://www.oclc.org/developer/develop/linked-data.en.html>
- Open Researcher and Contributor ID (ORCID). <https://orcid.org/>

Resources

- OpenRefine. <http://openrefine.org/>
- OpenRefine. Documentation for users. <https://github.com/OpenRefine/OpenRefine/wiki/Documentation-For-Users>
- OpenRefine Recipes. <https://github.com/OpenRefine/OpenRefine/wiki/Recipes>
- OpenRefine. Reconcilable data sources. <https://github.com/OpenRefine/OpenRefine/wiki/Reconcilable-Data-Sources>
- OpenRefine. Reconciliation. <https://github.com/OpenRefine/OpenRefine/wiki/Reconciliation>
- Orbis Cascade Alliance. OpenRefine for metadata cleanup. <https://www.orbiscascade.org/openrefine-for-metadata-cleanup/>
- Orbis Cascade Alliance. OpenRefine for metadata enrichment. <https://www.orbiscascade.org/using-openrefine-for-metadata-enrichment/>
- Oregon Digital. <https://oregondigital.org/catalog/>
- Ozmeka. <https://github.com/ozmeka/ozmeka>
- Reconcile-csv: <http://okfnlabs.org/reconcile-csv/>
Reconcile-csv in GitHub: <https://github.com/okfn/reconcile-csv>
- Tay, Aaron. OpenRefine, & reconciliation services - learning the ropes. <http://musingsaboutlibrarianship.blogspot.com/2017/03/openrefine-reconciliation-services.html>
- The Linked Open Data Cloud. <https://lod-cloud.net/>
- Transforming library metadata into linked library data: Introduction and review of linked data for the library community, 2003–2011. <http://www.ala.org/alcts/resources/org/cat/research/linked-data>
- Virtual International Authority File (VIAF). <https://viaf.org/>
- Wikidata. <https://www.wikidata.org>
- Wikidata Query Service. <https://query.wikidata.org/>
- Williamson, E. P. Fetching and parsing data from the web with OpenRefine. <https://programminghistorian.org/lessons/fetch-and-parse-data-with-openrefine>
- Worldcat Identities. www.worldcat.org/identities



Acknowledgement

Information Technology & Digital Initiatives
University of Central Florida Libraries



Thank you!

Contact

Sai Deng

Metadata Librarian & Associate Librarian

University of Central Florida Libraries

sai.deng@ucf.edu